

CLAIMS

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1. An isolated polynucleotide comprising a sequence selected from the group consisting of SEQ ID NO:1, SEQ ID NO:2, and SEQ ID NO:3, wherein said polynucleotide encodes a protein having UMP kinase activity.
2. An isolated polynucleotide which hybridizes to the polynucleotide of Claim 1 and which encodes a protein having UMP kinase activity.
3. An expression vector comprising the polynucleotide of Claim 1.
4. A host cell which is transformed with the expression vector of Claim 3.
- 10 5. A method of purifying a UMP kinase comprising;  
culturing the host cell of Claim 4 under conditions suitable for expressing UMP kinase encoded by said polynucleotide; and  
collecting said UMP kinase.
6. The method of Claim 5, wherein said collecting comprises adding UTP to said UMP kinase.
7. The method of Claim 5 further comprising purifying said UMP kinase.
8. The method of Claim 7, wherein said purifying comprises adding UTP to said UMP kinase.
9. A method of detecting the presence of a UMP kinase in a sample comprising  
20 adding GTP to said sample; and  
assaying for UMP kinase activity, wherein an increase in UMP kinase activity correlates to the presence of UMP kinase.
10. A method of detecting the presence of a UMP kinase in a sample comprising  
adding UTP to said sample; and  
assaying for UMP kinase activity, wherein a decrease in UMP kinase activity correlates to the presence of UMP kinase.
- 25 11. A method of detecting the presence of a UMP kinase in a sample comprising  
adding GTP to said sample;

assaying for UMP kinase activity, wherein an increase in UMP kinase activity correlates to the presence of UMP kinase;

adding UTP to said sample; and

assaying for UMP kinase activity, wherein a decrease in UMP kinase activity correlates to the presence of UMP kinase.

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12. A method of stabilizing a UMP kinase in a sample, comprising adding UTP to said sample.
13. A method of activating a UMP kinase in a sample, comprising adding GTP to said sample.
14. The method of Claim 12, further comprising adding GTP to said sample.
15. A method of screening for molecules according to any one of Claims 5 to 14.
16. An active molecule as obtained according to the method of any one of claims 5 to 14.
17. An active molecule as obtained according to the method of screening of Claim 15.
18. The recombinant bacteria strains deposited at the CNCM under the accession numbers I-2542, I2574 and I2579.